

EXHIBIT 4

CSE'S INFRINGEMENT ANALYSIS OF CATAPULT SPORTS**U.S. Patent No. 7,756,876 – Catapult Sports****Claims 1-6, 9-11, 13, and 14**

Charles Smith Enterprises LLC (“CSE”) provides evidence of infringement of claims 1-6, 9-11, 13, and 14 of U.S. Patent No. 7,756,876 (hereinafter “the ’876 patent”) by Defendant Catapult Sports, Inc. (“Catapult Sports”).

“Accused Instrumentalities” as used herein refers to at least Defendant’s website and/or computer systems hosting Defendant’s website, including products comprising media asset management systems, including one or more customizable media logging systems for indexing media, which by way of example include the XOS Digital software package, including but not limited to Thunder HD, ThunderCloud, Thunder Basketball, Thunder Hockey, Thunder Football, and Thunder Baseball. (*See, e.g.*, <https://xosdigital.catapultsports.com/hc/en-us/articles/360000698856-Live-Capture> and <https://www.catapultsports.com/sports/baseball>.) These claim charts demonstrate Defendant’s infringement, and provide notice of such infringement, by comparing each element of the asserted claims to corresponding components, aspects, and/or features of the Accused Instrumentalities. These claim charts are not intended to constitute an expert report on infringement. These claim charts include information provided by way of example, and not by way of limitation.

The analysis set forth below is based only upon information from publicly available resources regarding the Accused Instrumentalities, as Defendant has not yet provided any non-public information. An analysis of Defendant’s (or other third parties’) technical documentation and/or software source code may assist in fully identifying all infringing features and functionality. Accordingly, CSE reserves the right to supplement this infringement analysis once such information is made available to CSE. Furthermore, CSE reserves the right to revise this infringement analysis, as appropriate, upon issuance of a court order construing any terms recited in the asserted claims.

Unless otherwise noted, CSE contends that Defendant directly infringes the ’876 patent in violation of 35 U.S.C. § 271(a) by selling, offering to sell, making, using, causing to be used and/or importing the Accused Instrumentalities. The following exemplary analysis demonstrates that infringement. Unless otherwise noted, CSE further contends that the evidence below supports a finding of indirect infringement under 35 U.S.C. §§ 271(b) and/or (c), in conjunction with other evidence of liability under one or more of those subsections. Defendant makes, uses, sells, imports, or offers for sale in the United States, and/or has made, used, sold, imported, or offered for sale in the past, without authority, and/or induces others to make, use, sell, import, or offer for sale in the United States, or has induced others to make, use, sell, import, or offer for sale in the past, without authority products, equipment, or services that infringe at least 1-6, 9-11, 13, and 14 of the ’876 patent, including without limitation, the Accused Instrumentalities.

Unless otherwise noted, CSE believes and contends that each element of each claim asserted herein is literally met through Defendant’s provision of the Accused Instrumentalities. However, to the extent that Defendant attempts to allege that any asserted claim element is not literally met, CSE believes and contends that such elements are met under the doctrine of equivalents. More specifically, in its investigation and analysis of the Accused Instrumentalities, CSE did not identify any substantial differences between the elements of the patent claims and the corresponding features of the Accused Instrumentalities, as set forth herein. In each instance, the identified feature of the Accused Instrumentalities performs at least substantially the same function in substantially the same way to achieve substantially the same result as the corresponding claim element.

The screenshot displays the XOS Support interface for Baseball HD 2018. The main window is titled "Baseball HD 2018" and includes a menu bar with "Edit", "Personnel", "Organizers", "Games", "Import", "Tools", and "Finish Game". The "Log Window" is open, showing a list of events and intervals. The "Pitch" interval is selected, and the "Pitch" button is highlighted. The "Pitching Control" window is also open, showing a pitching control interface with a "Set Pitch Velocity" button, a "Pitch" button, and a "Replay" button. The "Pitching Control" window also displays a "Pitching Control" window with a "Pitching Control" button and a "Replay" button. The "Media Player" window is open, showing a video of a baseball game between the Yankees and Red Sox on 4/11/18. The video player includes a progress bar and a "00:07:14.51" timestamp. The "Log Window" shows a list of events and intervals, with the "Pitch" interval selected. The "Pitching Control" window displays a pitching control interface with a "Set Pitch Velocity" button, a "Pitch" button, and a "Replay" button. The "Pitching Control" window also displays a "Pitching Control" window with a "Pitching Control" button and a "Replay" button.

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VIDEO ANALYSIS

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'876 Patent: Claim 1	Defendant's Accused Instrumentalities
1. A computer-implemented media logging system for indexing media, comprising:	<p>On information and belief, Catapult Sports has provided and continues to provide its customers (including through the catapultsports.com website) with software packages, including, but not limited to, Thunder HD, ThunderCloud, Thunder Basketball, Thunder Hockey, Thunder Football, and Thunder Baseball (hereinafter the "Accused Instrumentalities"), which comprise a media asset management system for managing media assets, including one or more customizable media logging systems for indexing media.</p> <p>One exemplary logging application of the Accused Instrumentalities is Baseball HD.</p>
events administrator programmed logic circuitry configured to define a custom event captured in the media and further configured to define custom terminology applicable to the defined custom event;	<p>Baseball HD includes events administrator programmed logic circuitry (e.g., software code) configured to define a custom event captured in the media and further configured to define custom terminology applicable to the defined custom event.</p> <p>As shown in the above screenshot(s), a graphical user interface (as configured by the events administrator programmed logic circuitry) of Baseball HD has been customized to define an event named "Pitch", represented by the "Pitch" button, boxed in pink. A user may click on this "Pitch" button to start logging a pitcher's pitch (i.e., a custom event) in the baseball game (i.e., the media). The user may subsequently click on that same "Pitch" button a second time to end the logging interval. This process records, using the timer object, the particular points in time (i.e., "Media In", "Media Out", boxed in yellow) of the pitching event as well as the duration of the pitching event (i.e., "Media Duration", boxed in yellow).</p> <p>As shown in the above screenshot(s), the graphical user interface has also been customized to include custom terminology applicable to the defined custom event (i.e., the pitch). Once the pitch interval is logged, the user may record additional information about the pitch, including but not limited to the type of pitch thrown (e.g., by clicking one of the push buttons labelled "Fastball," "Changeup," "Curve," "Slider," or "Pitchout"), the pitch velocity (e.g., by selecting a pitch speed from the "Set Pitch Velocity" drop-down button), and the placement of the ball in relation to the strike zone (e.g., by selecting a location within the digital representation of the strike zone).</p>

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<p>a timer object configured to provide a time reference upon request in connection with the media; and</p>	<p>Baseball HD includes a timer object (e.g., media time slider) configured to provide a time reference (e.g., timestamp) upon request in connect with the media.</p> <p>As shown in the above screenshot, the media is a video of a baseball game, boxed in purple. Below the video, boxed in red, is a slider associating a frame and corresponding timestamp of the video, the timestamp shown below the slider with white numbers on a gray background. This slider is a timer object that, when moved, provides a time reference (i.e., timestamp) in connection with the media (i.e., baseball game). In this example, the time reference is based upon relative time and expressed as the difference between the current time position and the start of the media capture (e.g., start of the baseball game).</p>
<p>a logger object configured to log events defined by the events administrator programmed logic circuitry that occur in the media by associating the events with respective time reference from the timer object, the events being logged in accordance with the custom terminology defined by the events administrator programmed logic circuitry,</p>	<p>Baseball HD includes a logger object (e.g., the left side of the interface boxed in green, including the push buttons, text boxes, drop-down lists, and dynamic media, boxed in orange) that is configured to log events defined by the events administrator programmed logic circuitry (e.g., pitches) that occur in the media (e.g., baseball game) by associating the events with respective time references (e.g., “Media In,” “Media Out,” “Media Duration,” boxed in yellow) from the timer object (e.g., media time slider, boxed in red), the events being logged in accordance with the custom terminology defined by the events administrator programmed logic circuitry.</p> <p>As shown in the above screenshot(s), Baseball HD includes a logger object that logs events defined by the events administrator programmed logic circuitry that occur in the media. One aspect of the logger object is the “Pitch” button, boxed in pink. A user may click on this “Pitch” button to start logging a pitcher’s pitch (i.e., an event defined by the events administrator programmed logic circuitry) in the baseball game (i.e., the media). The user may subsequently click on that same “Pitch” button a second time to end the logging interval. This process records, using the timer object, the particular points in time (i.e., “Media In”, “Media Out”, boxed in yellow) of the pitching event as well as the duration of the pitching event (i.e., “Media Duration”, boxed in yellow). Once the pitch interval is logged, the user may record additional information about the pitch, including but not limited to the type of pitch thrown (e.g., by clicking one of the push buttons labelled “Fastball,” “Changeup,” “Curve,” “Slider,” or “Pitchout”), the pitch velocity (e.g., by selecting a pitch speed from the “Set Pitch Velocity” drop-down button), and the placement of the ball in relation to the strike</p>

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	<p>zone (e.g., by selecting a location within the digital representation of the strike zone). Such additional information is also saved (i.e., logged) in association with the respective time reference by clicking on the “Log Data” push-button (boxed in blue).</p>
<p>wherein the events administrator programmed logic circuitry is customizable by a user based in part on the type of media being indexed.</p>	<p>The graphical user interface is customizable by a user based in part on the type of media being indexed (i.e., the baseball game).</p> <p>For example, and as shown in the above screenshot(s), the graphical user interface (as configured by the events administrator programmed logic circuitry) is customizable to include team names and pitcher names (boxed in brown) associated with the particular baseball game being logged (boxed in purple). Each pitcher name corresponds to “Pitch” events that occur in the baseball game, as shown by the numbers under the word “Pitches” next to each pitcher name. Each “Pitch” event may be customized by type by selecting the buttons “Fastball”, “Changeup”, etc. to the left of the strike zone.</p> <p>Additionally, the custom team names and pitcher names are also used to correspond to other types of events, such as those indicated by the “Challenge”, “Catcher Block”, “Throw to Plate”, and “Missed Pitch” buttons at the top of the orange box next to the word “Events”.</p>

‘876 Patent: Claim 2	Defendant’s Accused Instrumentalities
<p>2. The logging system of claim 1, wherein the logger object includes a graphical user interface having a plurality of interface objects that can be selected by a user of the logging system in order to log events that occur in the media.</p>	<p>Baseball HD is a logging system that includes a graphical user interface having a plurality of interface objects that can be selected by a user of the logging system in order to log events that occur in the media.</p> <p>As described above, and as shown in the above screenshot(s), Baseball HD includes a graphical user interface having a plurality of interface objects (boxed in orange and brown) that can be selected by a user of the logging system in order to log events (e.g., “Pitch” events) that occur in the media (e.g., baseball game, boxed in purple).</p>

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'876 Patent: Claim 3	Defendant's Accused Instrumentalities
3. The logging system of claim 2, wherein the interface objects include labels thereon corresponding to predetermined events that may typically occur in the particular media being logged.	<p>Baseball HD is a logging system with interface objects that include labels thereon corresponding to predetermined events that may typically occur in the particular media being logged.</p> <p>For example, the "Pitch" button interface object (boxed in pink) corresponds to a "Pitch" event occurring in the baseball game (i.e., when the pitcher throws the ball), which is a predetermined event that typically occurs many times in a baseball game, the type of media (boxed in purple) being logged. Other interface objects (boxed in orange) also have labels corresponding to the "Pitch" event (i.e., Fastball, Changeup, etc.).</p>

'876 Patent: Claim 4	Defendant's Accused Instrumentalities
4. The logging system of claim 2, wherein the logging system is configured for use in logging a sporting event and the interface objects correspond to events that occur during the sporting event.	<p>Baseball HD is a logging system configured for use in logging a sporting event and the interface objects correspond to events that occur during the sporting event.</p> <p>As described above, Baseball HD is configured for use in logging events that occur during a baseball game (boxed in purple), and the interface objects (boxed in orange and brown) correspond to events (e.g., "Pitch" events) that occur during the baseball game.</p>

'876 Patent: Claim 5	Defendant's Accused Instrumentalities
5. The logging system of claim 1, wherein the graphical user interface is customizable to correspond to types of events that occur in the particular media being logged.	<p>Baseball HD is a logging system with a graphical user interface that is customizable to correspond to types of events that occur in the particular media being logged (i.e., the baseball game).</p> <p>As described above, and as shown in the above screenshot(s), the graphical user interface is customizable to include team names and pitcher names (boxed in brown) associated with the particular baseball game being logged (boxed in purple). Each pitcher name corresponds to</p>

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	<p>“Pitch” events that occur in the baseball game, as shown by the numbers under the word “Pitches” next to each pitcher name. Each “Pitch” event may be customized by type by selecting the buttons “Fastball”, “Changeup”, etc. to the left of the strike zone.</p> <p>Additionally, the custom team names and pitcher names are also used to correspond to other types of events, such as those indicated by the “Challenge”, “Catcher Block”, “Throw to Plate”, and “Missed Pitch” buttons at the top of the orange box next to the word “Events”.</p>
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‘876 Patent: Claim 6	Defendant’s Accused Instrumentalities
<p>6. The logging system of claim 1, wherein the system includes an arrangement that automatically logs predefined events in the media being logged based on video analysis.</p>	<p>Defendant’s logging system includes an arrangement that automatically logs predefined events in the media being logged based on video analysis.</p> <p>As stated on the Catapult website, “By enabling complex machine learning algorithms to process baseball events in the live environment, the Baseball Analytics Suite brings value to coaching staff by allowing them to make important decisions in real-time. Coaching staff can also see event analysis both live and post-session, which can be used to build a detailed picture of the physical demands placed on baseball players.” https://www.catapultsports.com/blog/catapult-launches-updated-baseball-analytics-suite;. <i>See also</i>, https://www.catapultsports.com/sports/baseball.</p>

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'876 Patent: Claim 9	Defendant's Accused Instrumentalities
9. The logging system of claim 1, wherein the system includes a video server that captures logged events and digitally stores the captured events as media segments.	<p>As described above, Defendant's logging system includes a video server that captures logged events and digitally stores the captured events as media segments.</p> <p>On information and belief, the media, boxed in purple, is stored at and plays from a video server, which digitally stores the captured events as media segments. As shown above, boxed in yellow, logged events are captured and digitally stored as media segments. Each media segment is labeled by "Name" and "ClipType" and is defined by the times labeled "Media In", "Media Out", and "Media Duration", corresponding to timestamps of the media being logged.</p>

'876 Patent: Claim 10	Defendant's Accused Instrumentalities
10. The logging system of claim 1, wherein the user interface includes a feature that enables the media segments to be selectively retrieved and viewed.	<p>Defendant's logging system user interface includes a feature that enables the media segments to be selectively retrieved and viewed.</p> <p>As shown above, boxed in yellow on the Baseball HD user interface, each logged event is labeled by "Name" and "ClipType" and is defined by the times labeled "Media In", "Media Out", and "Media Duration", corresponding to timestamps of the media being logged. On information and belief, when multiple events are logged (not shown in the screenshot(s) above), a user may select one such event to view the event.</p>

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'876 Patent: Claim 11	Defendant's Accused Instrumentalities
<p>11. The logging system of claim 1, further including a search engine that enables logged events to be searched using various search parameters.</p>	<p>Defendant's logging system including a search engine that enables logged events to be searched using various search parameters.</p> <p>As shown above, boxed in yellow on the Baseball HD user interface, each logged event is labeled by "Name" and "ClipType" and is defined by the times labeled "Media In", "Media Out", and "Media Duration", corresponding to timestamps of the media being logged. On information and belief, when multiple events are logged (not shown in the screenshot(s) above), a user may select a search parameter using the dropdown box labeled "All" directly above the yellow box in the screenshot to search for logged events associated with that selected search parameter.</p>

'876 Patent: Claim 13	Defendant's Accused Instrumentalities
<p>13. The logging system of claim 1, further comprising a GUI generator configured to generate a custom display for a user based on the defined custom event captured in the media and the defined custom.</p>	<p>The logging application Baseball HD includes a graphical user interface generator configured to generate a custom display for a user based on the defined custom event captured in the media and the defined custom.</p> <p>Baseball HD includes a graphical user interface generator configured to generate its graphical user interface. A generated graphical user interface is a custom display for a user because it includes custom team names and pitcher names (boxed in brown), which are entered by a user, to create the interface. The custom team names and pitcher names are custom user interface objects for a logging screen of the graphical user interface. The logging screen of the graphical user interface is what is shown by the entirety of the application window in the screenshot(s) above, which clearly shows the custom user interface objects. As described above, a user may use this logging screen to log events associated with media, the logged events including at least a custom team name, as shown boxed in yellow.</p>

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'876 Patent: Claim 14	Defendant's Accused Instrumentalities
14. The logging system of claim 1, wherein the logging system is configured for use with a plurality of different events.	<p>The logging application Baseball HD is configured for use with a plurality of different events.</p> <p>As shown boxed in orange, Baseball HD may be configured for use with a plurality of different events. For example, the events "Challenge", "Catcher Block", "Throw To Plate", "Missed Pitch", and "Pitch" are shown as buttons that a user may interact with to record such events.</p>

Caveat: The notes and/or cited excerpts utilized herein are set forth for illustrative purposes only and are not meant to be limiting in any manner. For example, the notes and/or cited excerpts, may or may not be supplemented or substituted with different excerpt(s) of the relevant reference(s), as appropriate. Further, to the extent any error(s) and/or omission(s) exist herein, all rights are reserved to correct the same.